

What is claimed:

- 1 1. A light emitting apparatus comprising:
2 a source of light for emitting light;
3 a down conversion material receiving the emitted light and converting the
4 emitted light into transmitted light and backward transmitted light; and
5 an optic device configured to receive the backward transmitted light and
6 transfer the backward transmitted light outside of the optic device.
- 1 2. The light emitting apparatus of claim 1, wherein the source of light
2 is a semiconductor light emitting diode, including one of a light emitting diode (LED), a
3 laser diode (LD), or a resonant cavity light emitting diode (RCLED).
- 1 3. The light emitting apparatus of claim 1, wherein the down
2 conversion material includes one of phosphor or other material for absorbing light in one
3 spectral region and emitting light in another spectral region.
- 1 4. The light emitting apparatus of claim 1, wherein the optic device
2 includes a light transmissive material.
- 1 5. The light emitting apparatus of claim 1, wherein the optic device
2 includes at least one of a lens or a light guide having a light transmissive property.
- 1 6. The light emitting apparatus of claim 1, wherein the optic device is
2 further configured to direct the light emitted from the source toward the down
3 conversion material.
- 1 7. The light emitting apparatus of claim 1, wherein the optic device
2 includes one of a lens or a light guide for directing substantially all of the light emitted
3 from the source toward the down conversion material.
- 1 8. The light emitting apparatus of claim 1, wherein the source of light
2 is disposed adjacent a first end of the optic device.
- 1 9. The light emitting apparatus of claim 8, wherein the down
2 conversion material is disposed adjacent a second end of the optic device, the second
3 end opposed to the first end.
- 1 10. The light emitting apparatus of claim 1, wherein the optic device is
2 geometrically configured to transmit the reflected light out of the optic device.
- 1 11. The light emitting apparatus of claim 1, wherein the source of light
2 includes a plurality of semiconductor light emitters.
- 1 12. The light emitting apparatus of claim 9, wherein the down
2 conversion material is deposited on a portion of the second end of the optic device.
- 1 13. The light emitting apparatus of claim 12, wherein the down
2 conversion material is deposited to cover substantially the second end of the optic
3 device.

1 14. The light emitting apparatus of claim 1, including a collecting
2 device for collecting the reflected light which is transferred out of the optic device.

1 15. The light emitting apparatus of claim 14, wherein the collecting
2 device includes a reflector for directing the reflected light away from the collecting
3 device.

1 16. The light emitting apparatus of claim 15, wherein (a) the source of
2 light is disposed adjacent a first end of the optic device, (b) the down conversion
3 material is disposed adjacent a second end of the optic device, and (c) the first end of
4 the optic device is disposed adjacent a first end of the reflector.

1 17. The light emitting apparatus of claim 1, wherein a geometrical
2 shape of the optic device includes one of a cone, sphere, hyperbola, parabola, ellipse,
3 pyramid, or box shaped.

1 18. The light emitting apparatus of claim 1, further including a reflector
2 surrounding at least a portion of the optic device, and a light diffuser deposited on top of
3 at least a portion of the reflector.

1 19. The light emitting apparatus of claim 18, wherein the down
2 conversion material is disposed between the source of light and the reflector, and the
3 down conversion material has a curved shape.

1 20. A light emitting apparatus comprising:
2 a cylindrical optic including a light transmissive material;
3 a light radiation source disposed within the cylindrical optic; and
4 a down conversion material, disposed at a middle section of and within the
5 cylindrical optic, for at least one of transmitting or reflecting light transmitted by the
6 light radiation source.

1 21. The light emitting apparatus of claim 20, wherein the light radiation
2 source is a semiconductor light emitter, including one of a light emitting diode (LED), a
3 laser diode (LD), or a resonant cavity light emitting diode (RCLED).

1 22. The light emitting apparatus of claim 20, where the light radiation
2 source is disposed adjacent one lateral end of the cylindrical optic.

1 23. The light emitting device of claim 20, wherein the light radiation
2 source includes first and second radiation sources, spaced from each other and both
3 disposed adjacent one lateral end of the cylindrical optic.

1 24. The light emitting device of claim 20, wherein the down conversion
2 material includes one of phosphor or other material for absorbing light in one spectral
3 region and emitting light in another spectral region.

1 25. The light emitting device of claim 20, wherein the down conversion
2 material is disposed substantially parallel to a longitudinal axis of the cylindrical optic.

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1 26. The light emitting apparatus of claim 20, wherein the light radiation
2 source includes at least one light source on each side of the down conversion material.

1 27. The light emitting apparatus of claim 26, wherein the light sources
2 are mounted on at least one substrate.